

1. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer containing at least Ti in an amount not less than 35 at.% and not more than 65 at.% and Al in an amount not less than 35 at.% and not more than 65 at.%.

2. A magnetic recording medium as defined in Claim 1, wherein the orientation control layer substantially has the L10-type (AuCu I-type) crystal structure.

3. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer having the crystal structure substantially of L10-type (AuCu I-type).

4. A magnetic recording medium as defined in Claim 1, wherein the underlayer is that of double-layer structure which consists of a first underlayer made of Cr and a second underlayer which is formed on the first underlayer containing at least one species of element selected from Cr, Nb, Mo, Ta, W, and Ti.

5. A magnetic recording medium as defined in Claim 1, which has an intermediate layer between the magnetic layer and the underlayer, said intermediate layer being made of a material containing Co and not less than 25 at.% Cr.

6. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer containing at least one element selected from group A (consisting of Ni and Co) in an amount of from 30 at.% to 60 at.%, Al in an amount from 20 at.% to 30 at.%, and one element selected from group B (consisting of Ti and Zr) in an amount from 20 at.% to 30 at.%.

7. A magnetic recording medium as defined in Claim 6, wherein the orientation control layer substantially has the L21 type (Cu_2AlMn type) crystal structure.

8. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer having the crystal structure substantially of L21-type (Cu_2AlMn type).

9. A magnetic recording medium as defined in Claim 6, wherein the underlayer is that of double-layer structure which consists of a first underlayer made of Cr and a second under-layer which is formed on the first underlayer containing at least one species of element selected from Cr, Nb, Mo, Ta, W, and Ti.

10. A magnetic recording medium as defined in Claim 6, which has an intermediate layer between the magnetic layer and the underlayer, said intermediate layer being made of a material containing Co and not less than 25 at.% Cr.

11. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer containing at least one species of element selected from Al , Cu , Rh, Pd, Ag, Ir, Pt, and Au in an amount not less than 70 at.% and having the (110) orientation.

12. A magnetic recording medium as defined in Claim 11, wherein the orientation control layer substantially has the fcc crystal structure.

13. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon directly or indirectly with a Cr underlayer or Cr alloy underlayer interposed between them,

said orientation control layer having the crystal structure substantially of fcc type and the (110) orientation.

14. A magnetic recording medium as defined in Claim 11, wherein the underlayer is that of double-layer structure which consists of a first underlayer made of Cr and a second underlayer which is formed on the first underlayer containing at least one species of element selected from Cr, Nb, Mo, Ta, W, and Ti.

15. A magnetic recording medium as defined in Claim 11, which has an intermediate layer between the magnetic layer and the underlayer, said intermediate layer being made of a material containing Co and not less than 25 at.% Cr.

16. A magnetic recording medium which comprises a substrate, an orientation control layer formed thereon, and a Co alloy magnetic layer formed thereon with a Cr underlayer or Cr alloy underlayer interposed between them, said orientation control layer having the B2 (CsCl) crystal structure incorporated with at least B.

17. A magnetic recording medium as defined in Claim 16, in which the content of B in the orientation control layer is not less than 0.05 at.% and not more than 15 at.%.

18. A magnetic recording medium as defined in Claim 16, in which the orientation control layer is made of an alloy whose principal component is at least one kind of alloy selected from A1-Co, A1-Fe, A1-Ni, A1-Pd, Co-Ga, Co-Fe, Co-Ti, Cu-Pd, Cu-Zn, Ga-Ni, Ga-Rh, and Ru-Si.

19. A magnetic recording medium as defined in Claim 16, wherein the underlayer is that of double-layer structure which consists of a first underlayer made of Cr and a second underlayer which is formed on the first underlayer containing at least one species of element selected from Cr, Nb, Mo, Ta, W, and Ti.